

REMARKS:

- 1) In view of the accompanying Request for Continued Examination (RCE), the Final Status of the Office Action of February 21, 2008 shall be withdrawn, the present amendments and remarks shall be entered, and the examination shall be continued on the basis of the present amendments and remarks.
- 2) If the present Response fails to place the application into condition for allowance, the Examiner is respectfully requested to call the undersigned attorney to conduct a Telephone Interview, so as to guide and expedite the further prosecution.
- 3) The claims have been amended as follows.

Claim 1 has been amended to expressly recite an insulation material layer as an express component of the claimed insulation arrangement. Also, the "termination profiles" have been redesignated "termination profile elements" to make clear that these are distinct elements or components relative to the outer sheath. Also, in amended claim 1, it has been made clear that the longitudinal seam is provided not only in the outer sheath, but more generally in the shell including the outer sheath and the termination profile elements. Still further, the insulation arrangement according to amended claim 1 additionally comprises closure parts that are provided on the shell at the longitudinal seam, and that are adapted to close the seam after the shell is mounted on the pipe. Furthermore, the titanium foil forming the outer sheath has a profiled or patterned surface configuration.

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The features added to independent claim 1 are supported by the subject matter of prior claims 11, 13 and 16.

Dependent claims have been amended wherever necessary for proper conformance with the amended independent claim 1, and for streamlining and clarification of the (original translated PCT) claim language.

Claim 16 has been canceled as its subject matter is now included in amended claim 1.

Independent claim 20 has been amended to make clear that the shell has the longitudinal seam extending therealong, and further comprises closure parts that are provided at the longitudinal seam and that are adapted to be secured together so as to close the longitudinal seam. The termination profiles have been redesignated as "termination profile elements" to make clear that these are distinct elements relative to the cylindrical outer sheath. It has also been further clarified in claim 20, that the insulation arrangement is a pre-fabricated insulation arrangement including the cylindrical annular insulation material jacket arranged in the cylindrical annular shell space inside the shell, and that this arrangement exists as a pre-fabricated pre-assembled component separate from the pipe and without the pipe yet received therein. The clarifications and additional features recited in amended claim 20 are supported by the subject matter of claims 11, 13 and 15 and the specification at page 6 lines 1 to 21.

Claims 22 to 26 have been amended to depend from claim 20, and for conformance in view of the amended language of claim 20.

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Claim 26 has been amended to further clarify the method steps involved in assembling and then installing the insulation arrangement.

New claims 28 to 32 have been added. Claims 28 to 30 are supported by the original disclosure of Figs. 5A and 5B and the specification at page 6 line 22 to page 7 line 8. New claim 31 is supported by the features of claim 16. New claim 32 is supported by the original disclosure of Figs. 1 and 2.

In view of the above mentioned original disclosure support, the claim amendments and the new claims do not introduce any new matter. Entry and consideration thereof are respectfully requested.

- 4) The allowance of claims 17 and 18 is appreciated. Claims 17 and 18 have been maintained without further amendment, and should thus still stand allowed.
- 5) Referring to pages 5 to 7 of the Office Action, the Examiner's "Response To Arguments" is appreciated and is well taken, but is further respectfully traversed in view of the points that will be discussed below in reply to the particular rejections. Generally, the present claims are not directed to a "final product" in its final installed condition on a pipe, as addressed by the Examiner. Instead, the present claims are directed to a pre-fabricated insulation arrangement that has a certain structure, arrangement and configuration before it is even mounted on a pipe. Furthermore, the Examiner has tacitly admitted that Kikuchi does not suggest two metal termination

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profile elements, and has applied Lestak for suggesting such features. However, the screen flanges in the arrangement according to Lestak are installed only after the insulation, as the entire structure is assembled and installed on the pipe or duct (see col. 2 lines 10 to 18, col. 3 lines 21 to 68, etc.). Thus, the teachings of Lestak would not have suggested to provide metal termination profile elements on ends of a pre-fabricated shell that has the presently claimed structure before being mounted on the pipe, and especially before even inserting the insulation material layer into the pre-fabricated shell.

- 6) Applicants' discussion of the references and remarks traversing the rejections as set forth in the prior Response of November 21, 2007 at pages 10 to 18 are incorporated herein by reference and reasserted. The Examiner is further requested to consider the following additional remarks.
- 7) Referring to pages 2 to 4 of the Office Action, the rejection of claims 1, 2, 11 to 15 and 20 to 26 as obvious over US Patent 4,287,245 (Kikuchi) in view of US Patent Application Publication US 2006/0054235 (Cohen et al.) and US Patent 4,182,379 (Lestak et al.) is respectfully traversed.
- 8) Currently amended independent claim 1 incorporates the subject matter of prior claim 16.

Since claim 16 was not subject to this rejection, therefore this rejection cannot apply to present claim 1 or its dependent

claims. Particularly, as acknowledged by the Examiner, Kikuchi, Lestak et al. and Cohen et al. do not disclose and would not have suggested that the titanium foil forming the outer sheath has a profiled or patterned configuration. This feature will be further discussed in comparison to the additional Oser et al. reference applied in the next rejection below.

Furthermore, the combination of references would not have suggested other important features of present claim 1. Claim 1 has been amended to make clear that the "termination profile elements" are distinct elements or components relative to the outer sheath and relative to the insulation material layer. This clearly distinguishes the inventive arrangement from the embodiment in Fig. 3 of Kikuchi in which the alleged termination profile (2b) is merely an end face of the insulation material (2) as described in col. 7 lines 33 to 35 and 48 to 60. Such profiled or configured end faces of the insulation material do not form distinct termination profile elements that are connected to the outer sheath at the first and second end sections of the outer sheath, as presently claimed.

Moreover, in present amended claim 1, the pre-fabricated shell including the outer sheath and the termination profile elements has the longitudinal seam extending longitudinally therealong. This makes clear that the complete pre-fabricated shell can be opened along this seam to slip it over a pipe. This is especially distinguished from the teachings of Lestak et al. where the flange (50) comprises a disk-shaped portion (58), an annular small diameter portion (52), and an annular large diameter portion (60), for example as shown in Fig. 3. This

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flange arrangement clearly cannot be slipped over a pipe after the complete pre-fabrication of the insulation shell, because this annular ring has no seam, and thus must be positioned on the pipe before final assembly. Therefore it is significant that the present inventive insulation arrangement is pre-fabricated and fully pre-assembled without yet being mounted on a pipe, and can then thereafter be mounted on the pipe.

Thus, even a combined consideration of Kikuchi and Lestak et al. would not have suggested the present inventive termination profile elements, because Kikuchi has no such distinct termination profile elements connected to the ends of the outer sheath, and Lestak et al. provide a termination profile element only as a complete annular ring that is mounted on the pipe before final assembly of the arrangement. Namely, the arrangement of Lestak et al. cannot be pre-fabricated, but rather must be assembled in place or *in situ* on the pipe, just like the arrangement of Kikuchi (see fifth from last line in the abstract of Kikuchi).

To further clarify the inventive features, currently amended claim 1 additionally recites closure parts that are provided on the shell at the longitudinal seam and that are adapted to close the longitudinal seam after the shell is mounted on the pipe. These closure parts are exemplified by the flange webs (14, 14', 15') as shown in present Figs. 5A and 5B. Such teachings are contrary to the teachings of Lestak et al. regarding the assembly of the outer shell and the termination profile elements.

The Examiner has asserted that "the ends of the insulation layers are seen to have a Z shaped termination profile as seen in Figures 3 and 4, thereby forming a shell with at least one longitudinal seam in which the insulation is inserted" (middle of page 2 of the Final Office Action of February 21, 2008). This assertion is internally inconsistent, and also would not have lead to a suggestion of the present invention. In the invention, it is **NOT** the ends of the insulation layers that "have a Z shaped termination profile" but rather the inventive arrangement includes termination profile elements as distinct elements that are connected to the outer sheath of titanium foil at the two opposite end sections thereof. Thus, a suggestion that the ends of the insulation layers shall have a Z shaped termination profile (according to the Examiner's assertion) is directly contrary to the present claimed invention. Furthermore, if it is the ends of the insulation layers that have the Z shaped termination profile, then it is impossible to form a shell having these Z shaped termination profiles before the insulation is even inserted therein, so that the insulation can then be inserted into the shell thereafter.

Moreover, Kikuchi teaches to start with a rigid foamed synthetic resin insulation material (2), and then to overlay an elastic sheet (3) onto the insulation material, and then to place a thin metal plate (4) onto the outer surface of the elastic sheet (see Kikuchi claim 1 in col. 10 lines 11 to 30, especially noting lines 15 and 23). Thus, there is no pre-fabricated shell including an outer sheath of titanium foil and termination

profile elements connected to the two opposite ends thereof, into which an insulation material layer can then be inserted. The presently claimed feature that the outer shell is a pre-fabricated component including both a titanium foil outer sheath as well as termination profile elements connected to the ends thereof, is a structural feature of the insulation arrangement, and does not merely recite a step or step sequence in an assembly method thereof. Even if assembly method steps or sequences are ignored, the Examiner has not shown Kikuchi to have or suggest a pre-fabricated outer shell that includes an outer sheath of titanium foil and two termination profile elements connected to the opposite ends thereof.

The Examiner's assertion in the bottom half of page 6 of the Office Action that "*Kikuchi does teach a shell adapted to receive the insulation as recited now, and upon modification with the teachings of Lestak would be provided with a metal termination attached to the outer sleeve*" is respectfully traversed. As discussed above and asserted by the Examiner, Kikuchi provides a Z-shaped termination profile at the ends of the insulation material layer, and does not suggest any need for a termination profile element to be connected to the ends of the outer sheath. To the contrary, by providing a termination profile on the ends of the rigid foam insulation material layer, Kikuchi makes a termination profile element at the end of the outer sheath unnecessary. In fact, the purpose of the termination profiles of the insulation layers according to Kikuchi, is to connect several insulation units end-to-end longitudinally along a pipe.

Such end-to-end connection of several insulation units does not require a closed termination profile element connected to the end of the outer sheath, in order to close off the end of the outer shell, because that would interrupt the insulation between adjacent units, but instead requires joinder or bonding of the successive insulation material layers to each other (see col. 7 lines 43 to 68). It is not desirable to interrupt the continuity of the insulation material layer. Thus, a person of ordinary skill in the art would have been motivated directly away from providing a termination profile element connected to and closing off the ends of the outer sheath.

Even if the teachings of Lestak et al. would have been combined with those of Kikuchi (contrary to the objects of Kikuchi), the result would have been an insulation arrangement with half shells of a hard insulating foam material, according to Kikuchi, with closed ring-shaped or disk-shaped flanges mounted on the pipe at the ends of the insulation according to Lestak et al. That still would not have provided for a pre-fabricated shell including an outer sheath and termination profile elements connected to the ends thereof, and with a longitudinal seam extending longitudinally therealong to allow insulation to be inserted therein. The closed configuration of the end flanges of Lestak et al. would directly prevent insertion of insulation material into a pre-fabricated shell, and therefore would not have been adapted to allow such insertion of insulation material.

The Examiner has further applied Cohen et al. for disclosing a titanium foil. However, Cohen et al. do not suggest the use

of a titanium foil as such, to form an outer sheath consisting of such a titanium foil. To the contrary, Cohen et al. disclose a multi-layered or multi-ply sandwich-type facing material with a plurality of alternating films or foils of metal, polymers, or other materials. Cohen et al. absolutely require such multiple layers of different materials to achieve the purposes that are the object of Cohen et al. (see abstract, paragraphs 0012, 0029, 0032, 0033, etc.). Thus, even considering the teachings of Cohen et al. together with those of Kikuchi and Lestak et al., there still would have been no suggestion to provide an outer sheath consisting of titanium foil.

If Cohen et al. would have been considered in combination with Kikuchi and Lestak, the result would have been (as discussed above) two half shells of hard foam insulation material (according to Kikuchi), with end termination flanges (according to Lestak et al.) and instead of the elastic sheet (3) and thin metal plate (4) of Kikuchi, there would have been a multi-layer sandwich-type facing material with alternating polymer and titanium layers glued onto the outside of the hard foam insulation material (according to Cohen et al.). That still would not have suggested the outer sheath consisting of titanium foil and the other inventive features discussed above.

For the above reasons, even a combined consideration of all the references would not have suggested the combination of features recited in present amended claim 1.

Contrary to present dependent claim 15, the references do not disclose a securing web that is configured to produce a form-locking secured connection.

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- 9) Currently amended independent claim 20 is patentably distinguishable over the prior art for reasons similar as discussed above.

Claim 20 is directed to a pre-fabricated insulation arrangement comprising a shell and a layer of thermal insulation material inserted into the shell through a longitudinal seam thereof. The shell comprises a cylindrical outer sheath comprising a titanium foil, and metal first and second termination profile elements connected to opposite end sections of the outer sheath. The shell further comprises closure parts that are provided at the longitudinal seam and that are adapted to be secured together so as to close the longitudinal seam. The pre-fabricated insulation arrangement including the cylindrical annular insulation material jacket arranged in the shell exists as a pre-fabricated pre-assembled component separate from the pipe and without the pipe yet received therein.

As discussed above, Kikuchi does not disclose such an arrangement having metal termination profile elements connected to the outer sheath comprising a titanium foil.

As also discussed above, Lestak et al. do not teach and do not allow for such a shell including the termination profile elements to be pre-fabricated and pre-assembled separate from the pipe and without the pipe yet received therein. Instead, the annular ring-shaped termination flanges of Lestak et al. must be slipped over the pipe during the assembly and installation of the insulation arrangement components on the pipe.

Thus, even if the teachings of Lestak et al. would have been combined with those of Kikuchi, there still would not have been

any motivation to provide a pre-fabricated pre-assembled component including the outer sheath with the metal termination profile elements connected to the ends thereof, and the insulation material jacket inserted therein, separate from the pipe and without the pipe yet received therein. Present claim 20 clearly defines a "snap shot" of the inventive insulation arrangement at a time when it does not yet have the pipe received therein, which is incompatible with the teachings of Lestak et al.

Dependent claim 26 is directed to a method of assembling and installing the insulation arrangement according to claim 20. The Examiner has generally asserted that the method steps are provided for in Kikuchi as modified. However, in view of the above discussion, it is clear that even a method including modifications according to Kikuchi and Lestak et al. would not have suggested the sequence of steps recited in present claim 26. According to Lestak et al., the termination flanges are only provided as the arrangement is being assembled on a pipe. According to Kikuchi, there are no metal termination profile elements connected to the ends of the outer sheath. Thus, even a combined consideration of the references could not have led to a method according to present claim 26.

For the above reasons, the Examiner is respectfully requested to withdraw the obviousness rejection applying Kikuchi in view of Cohen et al. and Lestak et al.

- 10) Referring to pages 4 and 5 of the Office Action, the rejection of claims 16 and 19 as obvious over Kikuchi in view of Cohen et

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al. and Lestak et al., and further in view of Oser et al. (US Patent 3,904,379) is respectfully traversed.

The subject matter of claim 16 has been incorporated into currently amended claim 1, as discussed above. Claim 19 depends from claim 1. Claim 1 has been discussed above in comparison to the first three references.

Oser et al. has been additionally applied for disclosing "to provide (foils) with ribs 24 which would act as stiffening elements formed adjacent to the foil outer layer and thereby give the foil layer a pattern". It is noted that there are NO stiffening ribs 24 provided in the outer layer (36) according to Oser et al. Instead, the outer layer forming the outer sheath or shell is a smooth layer that does not have a patterned surface configuration (see Figs. 1, 2 and 3). Instead, only the inner metal plates 22 are provided with such ribs or stand-offs 24, in order to space these reflective metal plates from one another, to achieve the intended reflective insulation effect. Thus, Oser et al. teach only how to achieve a reflective insulation arrangement, and would not have suggested how to stiffen or strengthen an outer sheath of titanium foil by providing a patterned surface configuration thereof. The teachings of Oser et al. would only have suggested how to stiffen or strengthen inner layers of insulation in the arrangement of Kikuchi.

Thus, a combined consideration of all four references would not have made the invention obvious. Please withdraw the obviousness rejection applying all four references.

- 11) New claims 28 to 32 depending from claim 20 recite additional features that further distinguish the invention over the prior art. Claims 28 to 30 relate to the particular configuration and arrangement of flange webs as the closure parts extending along the longitudinal seam, for example as shown in present Figs. 5A and 5B. Claims 31 and 32 define the patterned surface configuration in more detail, for example as shown in present Figs. 1 and 2. These features are neither disclosed nor suggested by the prior art references. Favorable consideration thereof is respectfully requested.
- 12) Favorable reconsideration and allowance of the application, including all present claims 1, 2, 11 to 15, 17 to 26, and 28 to 32, are respectfully requested.

Respectfully submitted,

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Enclosures:
Transmittal Cover Sheet
Request for Continued Exam. (RCE)
Term Extension Request
Form PTO-2038

By Walter F. Fasse
Walter F. Fasse
Patent Attorney
Reg. No.: 36132
Tel. 207-862-4671
Fax. 207-862-4681
P. O. Box 726
Hampden, ME 04444-0726

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Walter F. Fasse 7/21/08
Name: Walter F. Fasse - Date: July 21, 2008

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